Counterfire Requirements in an Insurgency

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# Counterfire Requirements in an Insurgency

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## INTRODUCTION

> Insurgents fired a mortar at a U.S. ceremony attended by top officials on Tuesday [Nov 22, 2005] to hand over a presidential palace in Saddam Hussein's hometown to Iraqi authorities, sending the U.S. ambassador and top commander scrambling for cover….[1]

The U.S. military, not for it lack of trying, has not been able to defeat the non-conventional indirect fire threat facing our troops in both Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF). The enemy's use of "shoot-and-scoot" indirect fire tactics, techniques and procedures (TTPs), presently rank second in terms of casualties and wounded in action (WIA) for both OIF and OEF.[2] Countering these fires, often found in insurgency and guerilla warfare, has surfaced a critical tactical shortfall: The U.S. military needs a radar system or systems designed specifically for insurgency type operations combating the indirect fire threats.

## BACKGROUND

The U.S. and its coalition allies, conduct most operations from, "secure locations," often called forward operating bases (FOBs) of Firm bases. However, constant enemy indirect fire attacks of rockets, artillery and mortars have limited, even neutralized, the effectiveness

[1] Bassem Mroue, "Mortar Disrupts U.S. Ceremony in Iraq," *ABC News*, November 22, 2005, sec. International.
[2] Mark Schimmelbusch, Marine Corps Combat Development Command, Management Information Branch, interview by Capt Jacob. O. Evans

of most U.S. operations primarily due to the second and third order consequences of these attacks.

## INSURGENCY OPERATIONS AND IT EFFECTS

Insurgent or guerilla type operations have become the warfighting style most used by nations of inferior arms and military equipment. This type of warfare is not new and often employed against a more powerful aggressor nation, in this case the United States. The Thirty-first Commandant of the Marine Corps, General C.C. Krulak identified this reality in his concept paper, The Strategic Corporal: Leadership in the Three Block War:

> The widespread availability of sophisticated weapons and equipment will "level the playing field" and negate our traditional technological superiority. The lines separating the levels of war and distinguishing combatant from "non-combatant," will blur, and adversaries, confounded by our "conventional" superiority, will resort to asymmetrical means to redress the imbalance.[3]

In the operational environments of Iraq and Afghanistan, with no discernable front and/or rear lines, U.S. forces continually encounter adversaries that often achieve continued success through indirect fire. More often than not, indirect fire attacks occur on or near densely populated urban areas. Urban areas provide insurgents certain advantages like concealed mobility. Perpetually, U.S. forces cordon and search areas in an

[3] General Charles C. Krulak, *"The Strategic Corporal: Leadership in the Three Block War,"* Marine Magazine, January 1999, 29-35.

effort to locate the origin of indirect enemy fire. Searches consume valuable time and result in further exposure of forces to follow-on direct and/or indirect fire attacks.

What makes these deadly attacks so problematic is that without identifying within a hundred meters the origin of an attack, attacking with incorrect information creates collateral damage and counterattacking allows casualties numbers to escalate. Collateral damage not only has operational but strategic ramifications, such as, more restrictive rules of engage (ROE) and stricter political oversight of military operations. The worse possible collateral damage outcome could be increased civil resentment toward U.S. troops. At the end of the day, our forces find themselves in is a no-win situation.

## CRITICAL TACTICAL SHORTFALL

> Between 15 and 20 people have been wounded, with injuries ranging from minor hearing damage to severe shrapnel wounds [at Camp Anaconda]. Doctors needed to amputate Staff Sgt. Joe Bowser's (USA) right leg below the knee after a mortar landed near him outside the base's convenience store on April 12, [2005][4].

Most FOBs receive an average, two to seven mortar attacks each day and the chances of the enemy hitting a

[4] Matthew Dolan, "Mortar attacks a way of life for coalition camp near Baghdad" *The Virginian-Pilot*, May 27, 2004 , sec. Military/Iraq

high-value target improve with each following attack[5]. One or two rounds, termed harassing-fires and the deadly massed indirect fire attacks are also taking a toll on a commander's offensive initiative. Consequently, commanders exposed to indirect fire have identified that more of their resources, time, and manpower must be spent of local security and patrolling rather than their SASO mission.

Not only are these harassing-fires creating a significant tactical dilemma but also having significant psychological impact of friendly/U.S. forces. On November 22, 2005, Iraqi insurgents fired a mortar at a U.S. ceremony involving the hand-over of a presidential palace to local Iraqi authorities in Tikrit, Iraq[6]. At the ceremony were the most senior military and political envoy the United States has in Iraq; U.S. Ambassador Zalmay Khalilzad and the U.S. commander in Iraq, General George Casey (USA).

Attacks similar to the one against the General and Ambassador the 101st Airborne Division authored an after action report (AAR) specifying the need for, "a lightweight, portable, omni-directional counter-[fire]

[5] Matthew Dolan, "Mortar attacks a way of life for coalition camp near Baghdad" *The Virginian-Pilot*, May 27, 2004 , sec. Military/Iraq

[6] Bassem Mroue, "Mortar Disrupts U.S. Ceremony in Iraq," *ABC News*, November 22, 2005, sec. International.

radar."[7] 101st believes this capability will answer their indirect fire threat information requirements: identification of the point of origin (POO) and point of impact (POI) of the round(s). The POO and POI of an attack incorporated into a fire support plan would provide early warning of an attack. Commanders could then initiate a counterattack therefore mitigating significant risk of collateral damage. The ability to warn troops prior to rounds impacting and identifying where to direct a counterattack would greatly enhance force protection and reduce friendly casualties.

## LEGACY RADAR SYSTEMS

Presently, the U.S. military employs the AN/TPQ37[8], and AN/TPQ46a[9] (legacy) radar systems in support of enemy indirect fires threats. Unfortunately, these radar systems do not fulfill either the operational nor tactical requirements of today's non-linear, non-contiguous, urban battlespaces, all of which are found in Iraq and Afghanistan.

What discourages commanders for employing these legacy systems are the numerous constraints they bring to a tactical environment/situation. Both radar systems were

[7] Scott R. Glurley, "Lightweight Counter-Mortar Radar," *Army Magazine* 52, no.4 (2002): http://www.ausa.org/.
[8] Raytheon Company, *Products and Services*, http://www.raytheon.com/products/tpq37/
[9] Globalsecurity.org, http://www.globalsecurity.org/military/library/policy/army/fm/3-09-12/ch2.htm

developed for use against the traditional Soviet frontal attack. Therefore, these systems provide only a ninety-degree azimuth of sector. In other words, a quarter of the urban battlespace. By doctrine, the U.S. Marine Corps requires its AN/TPQ46(a) to be operated by nine specialty trained Marines. Further, a vehicle such as a HMMWV or larger is required to transport it. Finally, when a radar system is attached the supported commander is required to provide security for the radar and its operators.

While in Iraq, Major George C. Schreffler III, operations officer for 3rd Battalion, 7th Marines. As the operations officer he was tasked with providing a rifle company to operate out of a nearby village twenty kilometers to the north of the battalion FIRM base. At this FIRM base his battalion was provided an attached an AN/TPQ46a firefinder radar. The Major stated, “The radar had to be employed in an ‘offset location’ and of because of its ninety-degree coverage. [An offset location is a position that compensates for a radar’s limited coverage area and the direction in which it has to be employed.] Because of the ninety-degree it would not cover the battalion’s AO and the rifle company operating to the north of the Battalion FIRM base.” This ‘offset location’ required Major Schreffler to assigned an infantry platoon of forty-three Marines to secure a new location outside the

battalion FIRM base. These Marines were then required to provide continuous security for the radar and the operators. Major Schreffler concluded, "the radar system caused us more problems then it solved."[10]

## LIGHTWEIGHT COUNTERMORTAR RADAR

Currently, a prototype lightweight countermortar radar or (LCMR), originally developed to meet a Special Operations Command (SOCOM) requirement in 2002 has been "pushed into use" before operational testing and evaluation have been completed. However, by early 2003, United States Central Command (CENTCOM) requested bypassing the prototype's final testing phase so forces in theatre, OIF and OEF, could start using this capability.

Prior to combat operations, tests at Aberdeen Proving Ground in April of 2002, indicated a circular error probability (CEP) of 100 meters with half of these fired rounds impacting within fifty meters.[11] What this meant for units is now they are able to identify the POI, and subsequently the POO of enemy indirect fire to within fifty meters. By late 2003, the remaining LCMR prototypes were in support of OIF units.[12] Recently, AARs from the U.S.

[10] Major George C. Schrefler III, personnel interview by Capt. Jacob O. Evans, November 2005.
[11] Scott R. Glurley, "Lightweight Counter-Mortar Radar," *Army Magazine* 52, no.4 (2002): http://www.ausa.org/.
[12] Larry Bovino and Mark Weber, "*Lightweight Counter-Mortar Radar*," Radar and Combat ID Division, Intelligence & Information Warfare Directorate, Syracuse Research Inc., November 2005.

Army[13] and U.S. Marine Corps[14] have indicated favorable performance and operation of these prototypes.

While designed primarily as a mortar detection system the LCMR has identified artillery and rocket attacks up to distances measured of fourteen and one half kilometers.[15]

To date, the LCMR has fulfilled the needs of many combatant commanders: two man-portable 60lb sections, battery powered, omni-directional, and extended range inclusive of the longest known mortar threat. More importantly, the LCMR does not possess the numerous constraints the legacy radar systems have.

Currently, the U.S. Army has thirty-nine LMCRs in use in Iraq and Afghanistan. The United States Marine Corps has five. At the present time production has not been authorized for more LCMR systems.

## COUNTERARGUMENTS

Opponents of a new radar system cite several potential problems of bringing another radar system into the inventory. Issues such as training, maintenance, and availability are forefront of these concerns. In contrast to the legacy firefinder radars, training is not required

[13] U.S. Marine Corps, *Marine Corps Center for Lessons Learned, After Action Report,* 2003-2005.
[14] U.S. Army, *Center for Army Lessons Learned,* AAR, 2003-2005.
[15] Moore, Captain James M. USMC. personnel interview by Capt. Jacob O. Evans, November 2005.

to operate the LCMR[16]. Maintenance is conducted at the operator level and broken parts are simply thrown away. Manpower is limited to one Marine for operation and two Marines for footmoblie transport. In fact, in July of 2004, the U.S. Army's 1st Armored Division turned over one LMCR to U.S. Marines who were relieving them. A 2nd Marine Regiment forward observer who worked with the LCMR out of Camp Mahmudiyah, Iraq provided the following assessments:

> Your average Marine could pick this system up and be able to operate it in a few days...When a Staff Sergeant asked me if the system worked, I asked him if he heard our outgoing fire after we were last mortared, When he said 'yes', I told him he answered his own question…It's good to know we have this piece of equipment here, it's good to know we don't have to wait so long to fire back and when we do it'll be a lot more accurate. And that's the whole goal, to find out where they're shooting from and kill the bastards.[17]

## CONCLUSION

With the LCMR the U.S. Army, via SOCOM, developed a product that from any location and direction detects the origin, trajectory, and point of impact of an indirect fire attack. Legacy radars can do the same as the LCMR given the round was shot towards the radar system, the radar was at the correct angle, the radar was able to be secured outside the FOB, and lift was available to transport the radar.

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[16] Corporal Shawn C. Rhodes, "New Radar system brings the fight back to terrorists." *Marines Corps News*,http://www.usmc.mil/marinelink/mcn2000.nsf/0/835bbd0217b5de3285256fea005cb4e2?OpenDocument&Highlight=2,lcmr

[17] Corporal Shawn C. Rhodes, "New Radar system brings the fight back to terrorists." *Marines Corps News*,http://www.usmc.mil/marinelink/mcn2000.nsf/0/835bbd0217b5de3285256fea005cb4e2?OpenDocument&Highlight=2,lcmr

Ultimately, the LCMR accomplishes the same mission of the legacy radars at a fraction of the cost and improves the troop force protection in the process.

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